

Global Aviation Information Network

(www.gainweb.org)



Christopher A. Hart

**Federal Aviation Administration
Assistant Administrator for System Safety**

Worldwide Airline Fatality Rate*

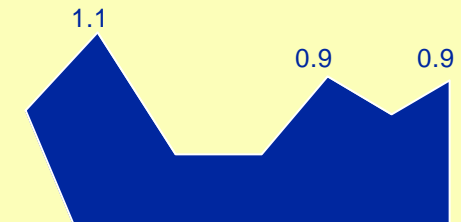


AN INTERNATIONAL COMPARISON THE WORLD'S 85 MAJOR AIRLINES BY REGION

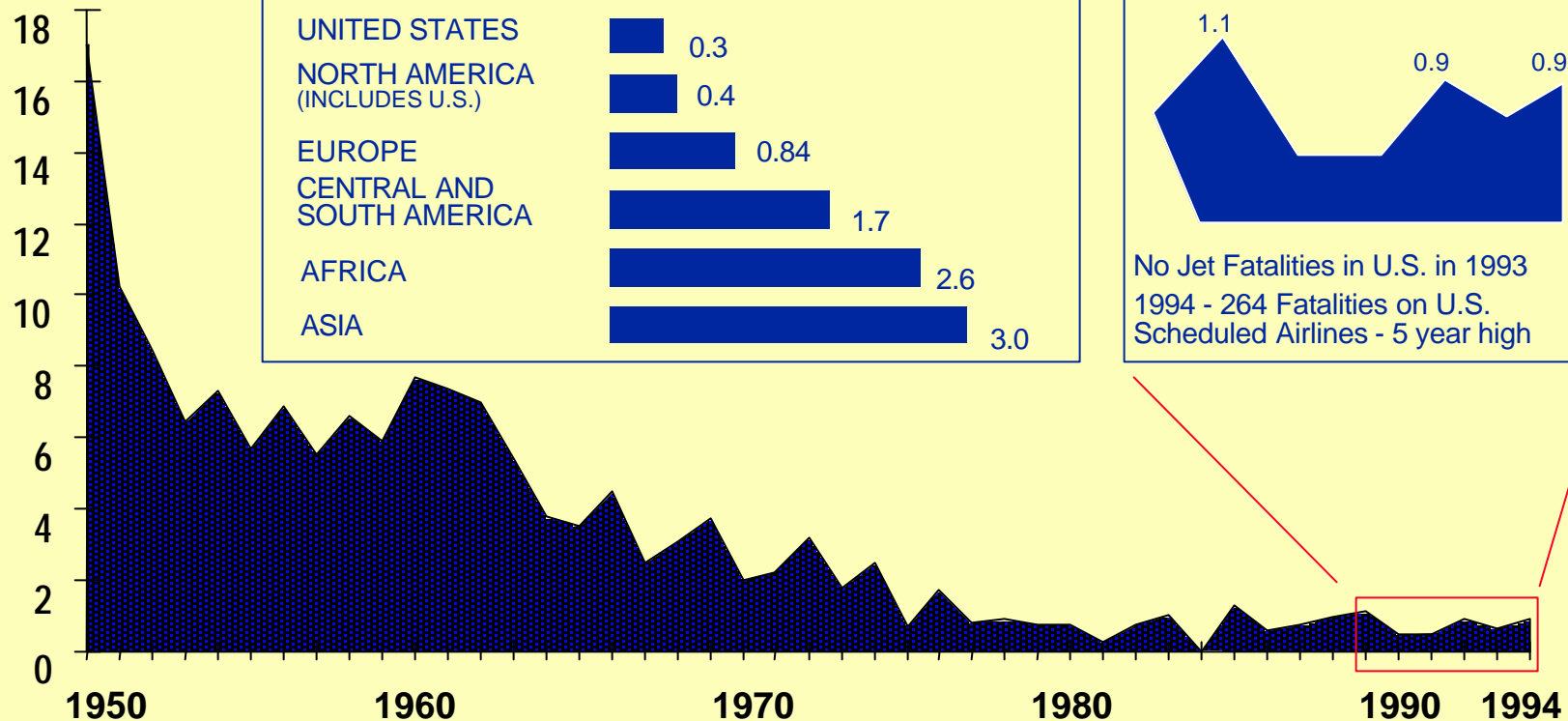
AUSTRALASIA	0.0
UNITED STATES	0.3
NORTH AMERICA (INCLUDES U.S.)	0.4
EUROPE	0.84
CENTRAL AND SOUTH AMERICA	1.7
AFRICA	2.6
ASIA	3.0

THE LAST 6 YEARS

FATALITIES PER MILLION
PASSENGERS WORLDWIDE



No Jet Fatalities in U.S. in 1993
1994 - 264 Fatalities on U.S.
Scheduled Airlines - 5 year high



* Per Million Passengers Carried Worldwide

The Hands-On “Front Line” Folks:

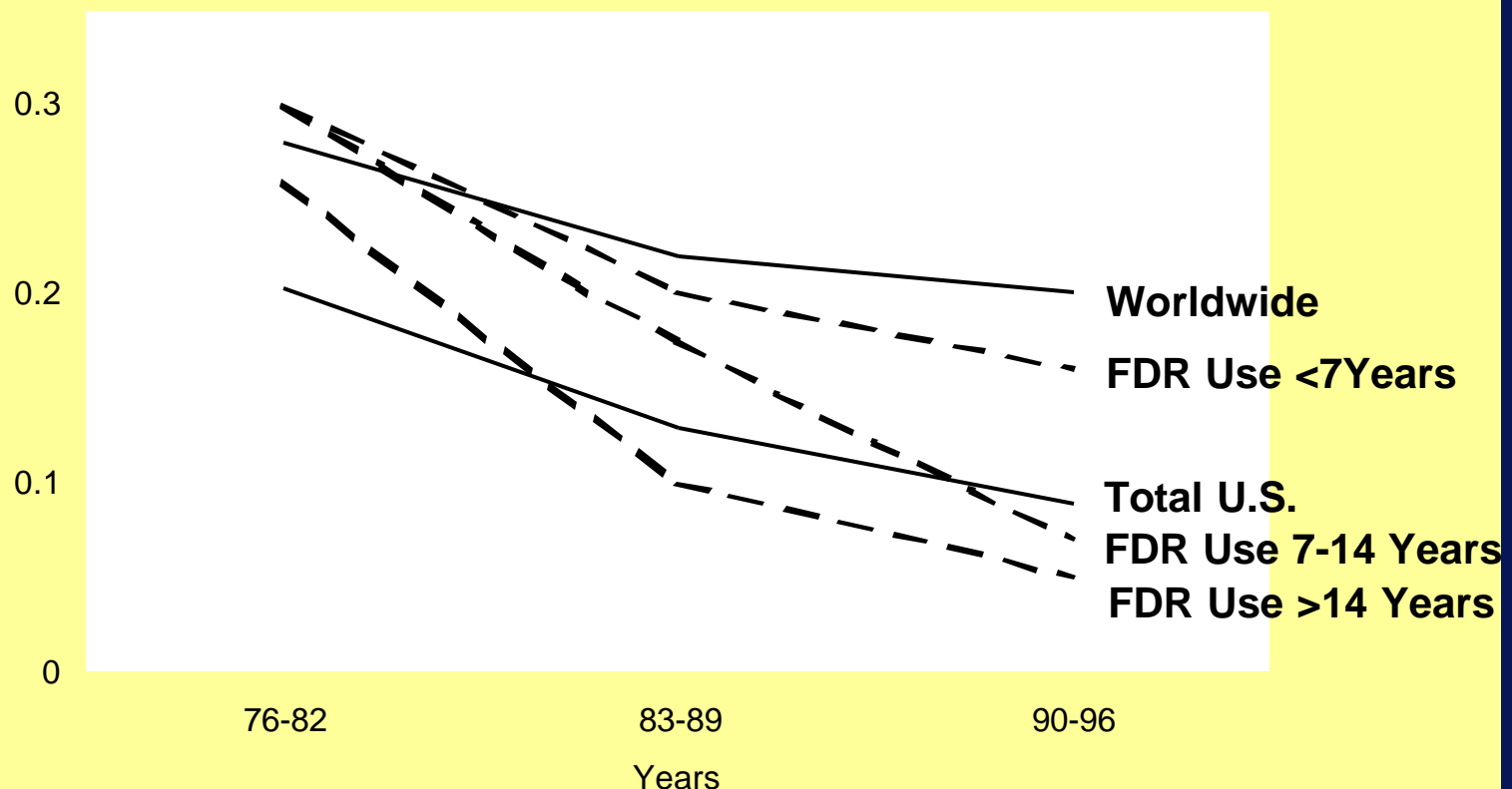


**“We All Knew About
That Problem”**

Benefits of FDR Use

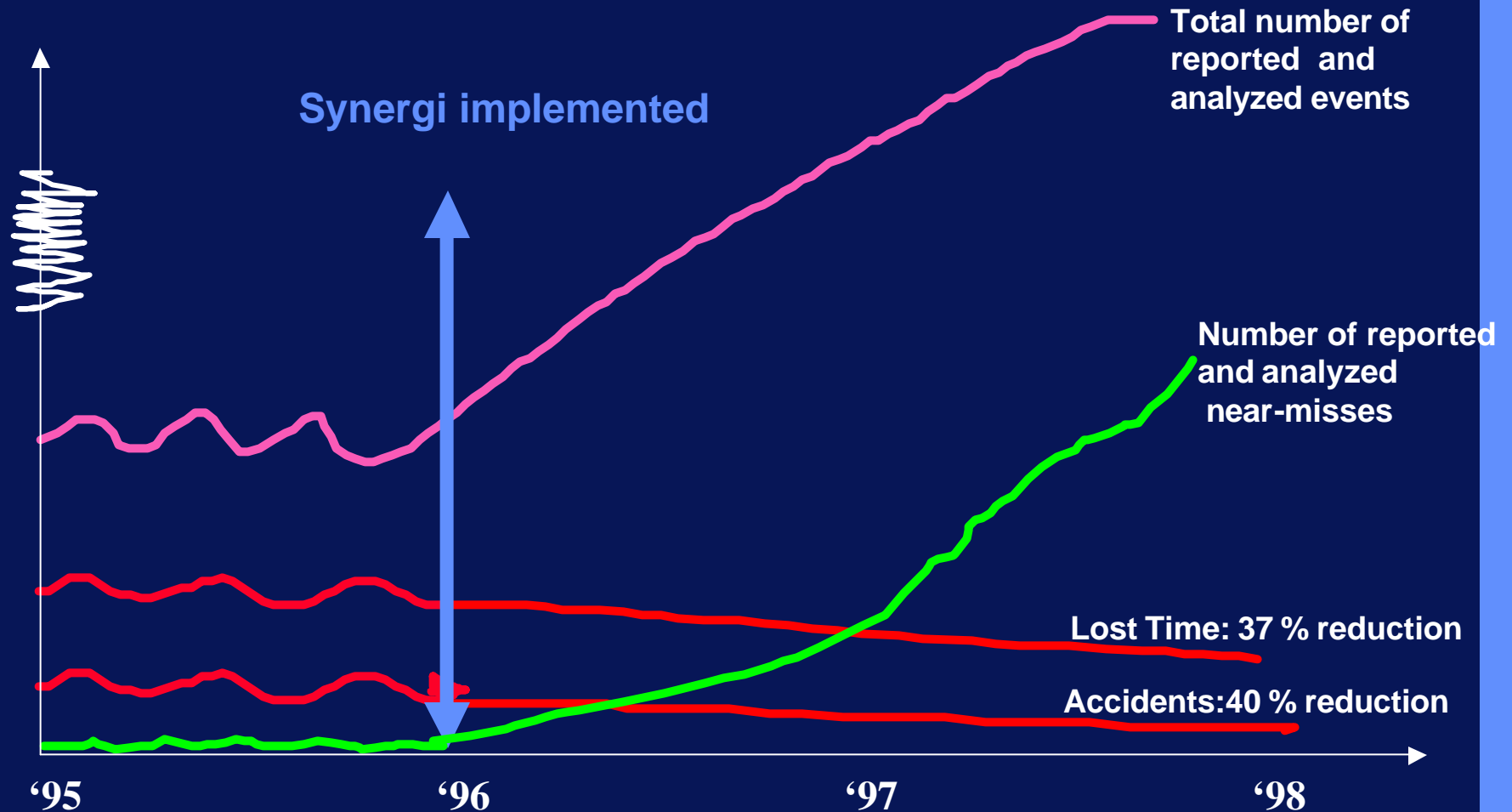


Hull Losses as a Percent of Total Turbine Fleet
Flight Data Recorder Users vs. U.S. vs. World



Sources: Total U.S.- FAA NASDAC
Other - Skandia Insurance Co. Ltd.

Norwegian Rail Experience



Source: Pride AS

Current System Data Flow



**Almost all Data
is Lost Forever**

**Currently Only a Minute
Portion of Data is
Collected and Analyzed**

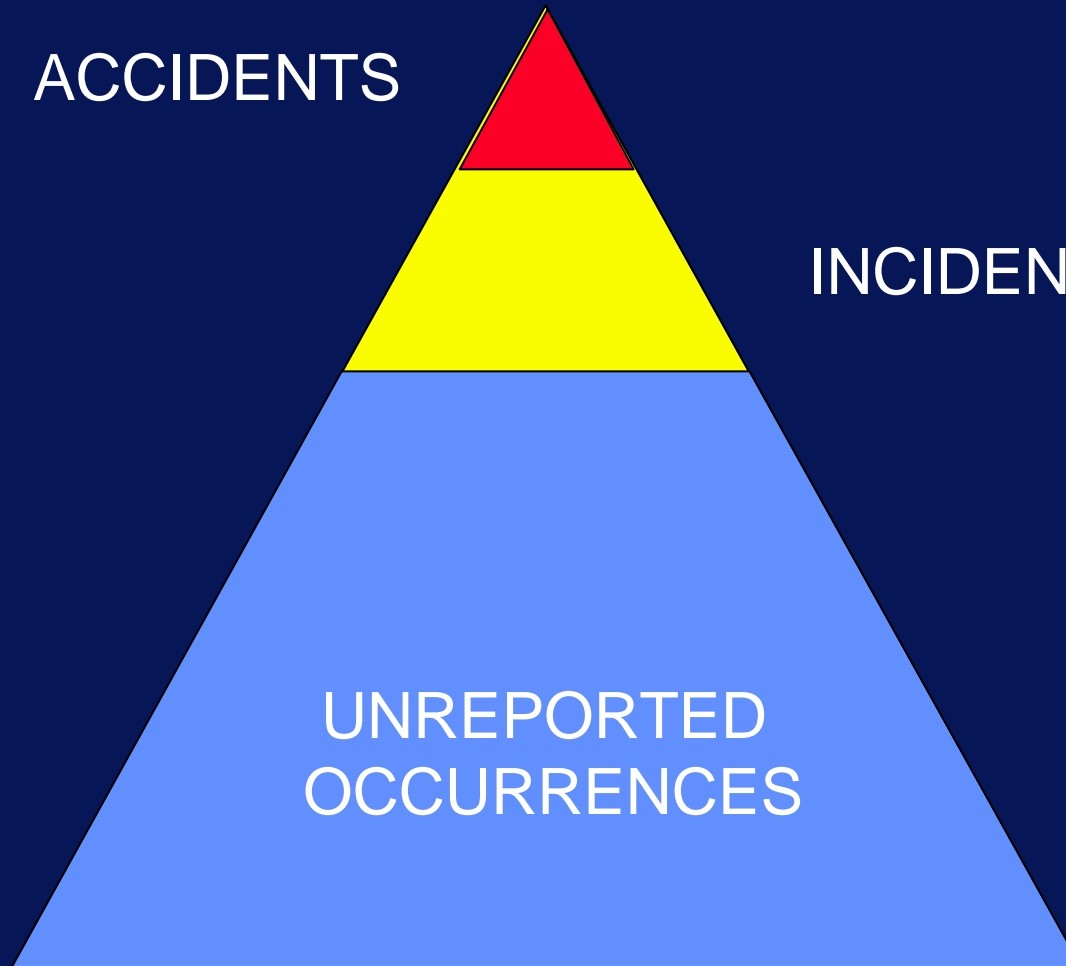
Heinrich Pyramid



ACCIDENTS

INCIDENTS

UNREPORTED
OCCURRENCES



Common Characteristics



- **Inadvertent**
- **Could Be A Link
In An Accident Chain**
- **Happens Repeatedly**

So Should We...



- Regulate More?
- Punish More?
- Increase Training?

OR...

**Share
Information to
Fix the System?**

Fix the Person or the System?



Is the Person
Clumsy?

Or Is the
Problem . . .



Fix the Person or the System?



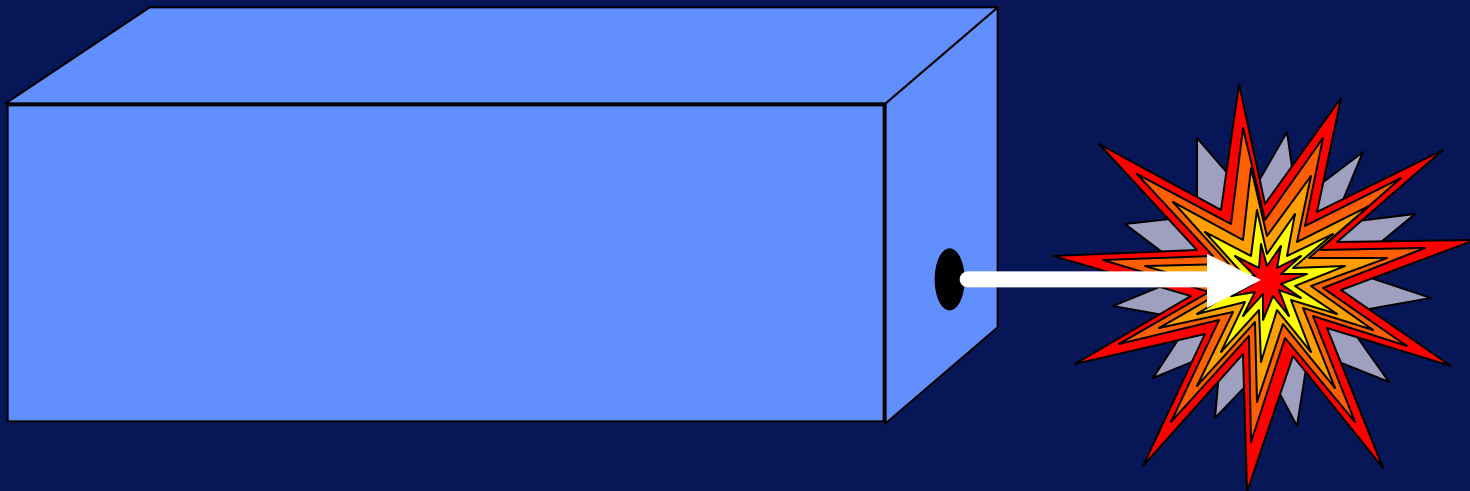
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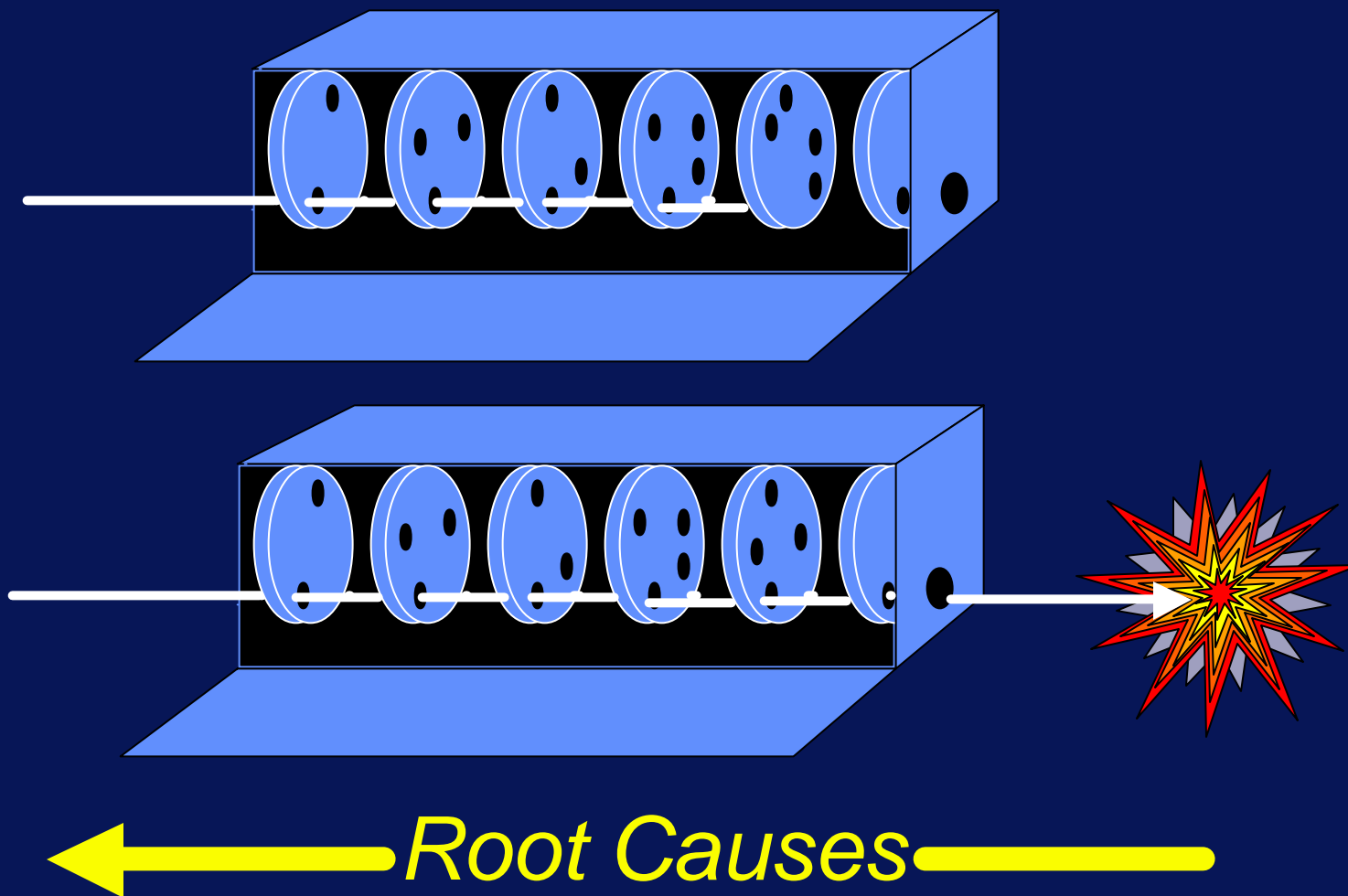
The Step???



Is This Light Random?

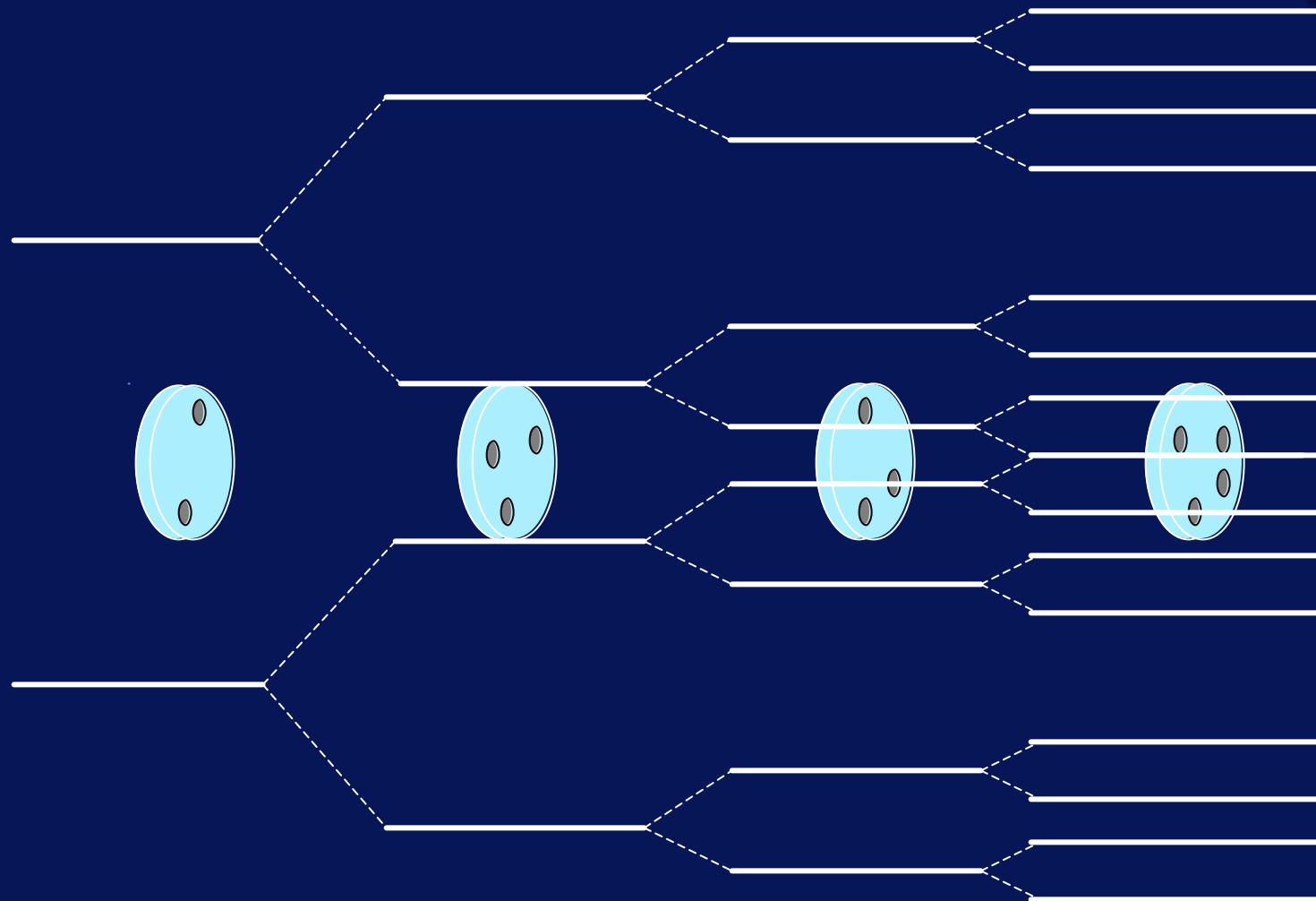


Accidents Result From a Combination of Events



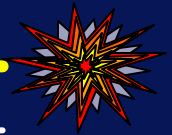
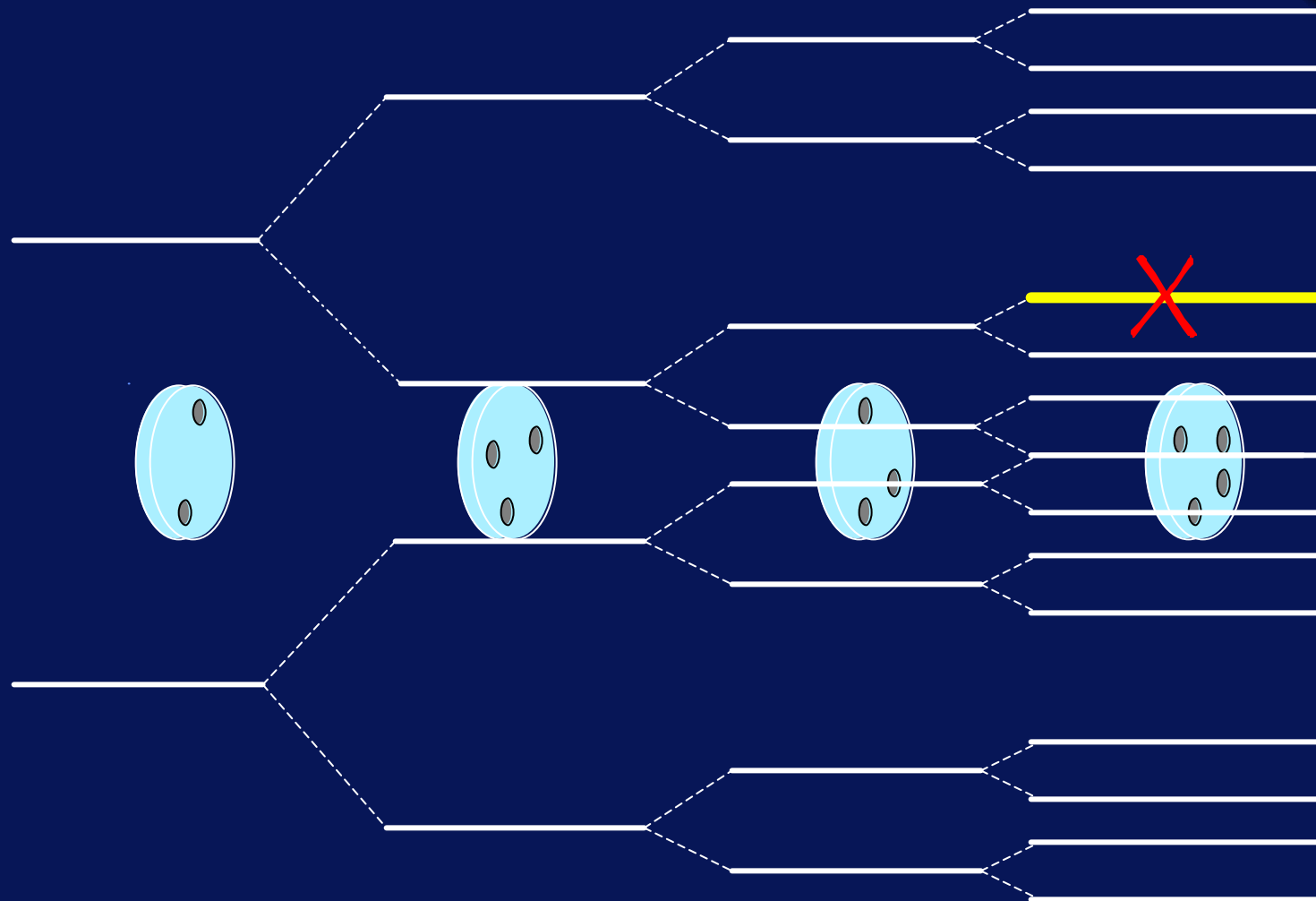
Root Causes

Spinning Wheel “Event Tree”



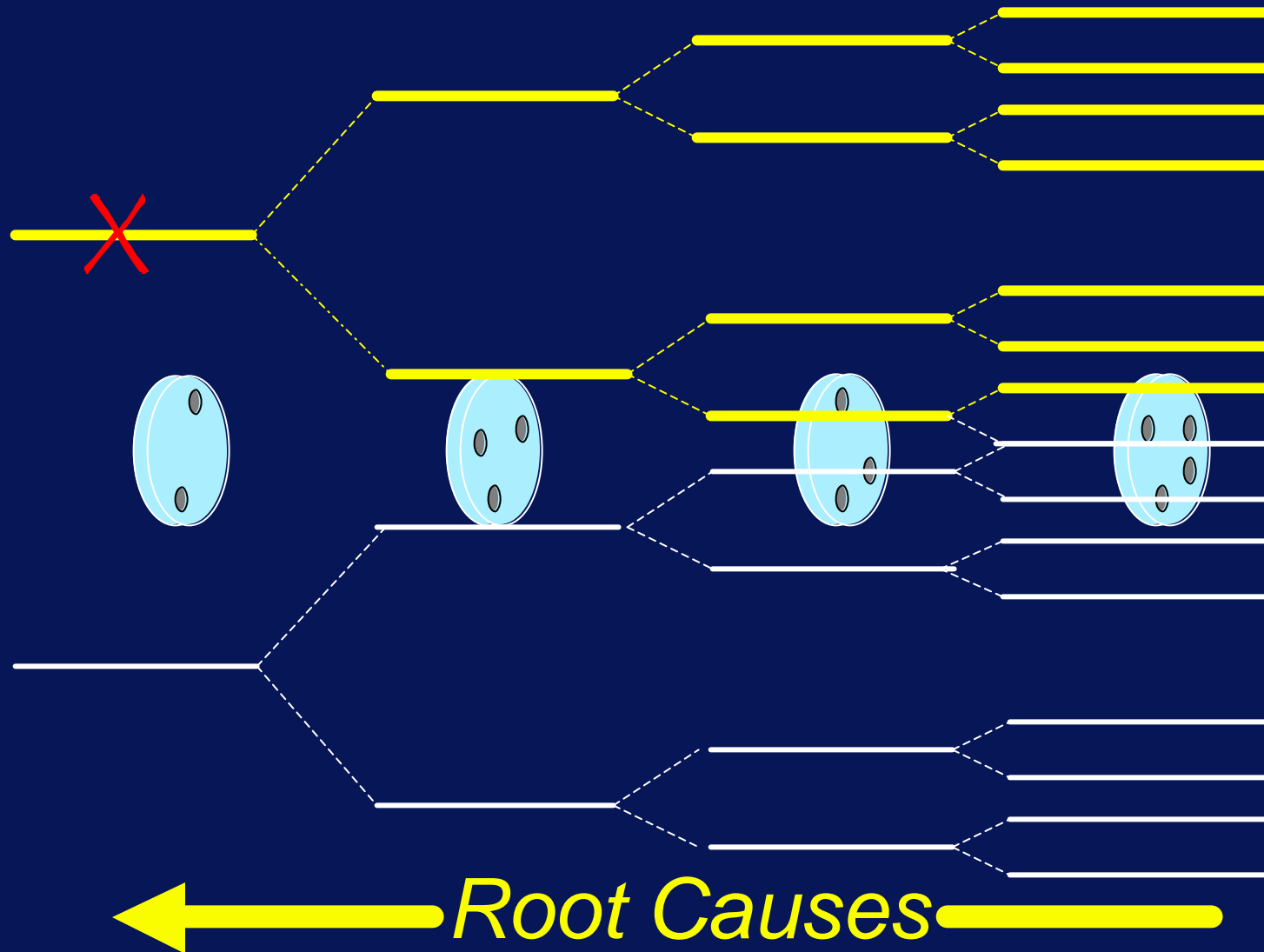
← *Root Causes* →

Eliminating an Active Problem

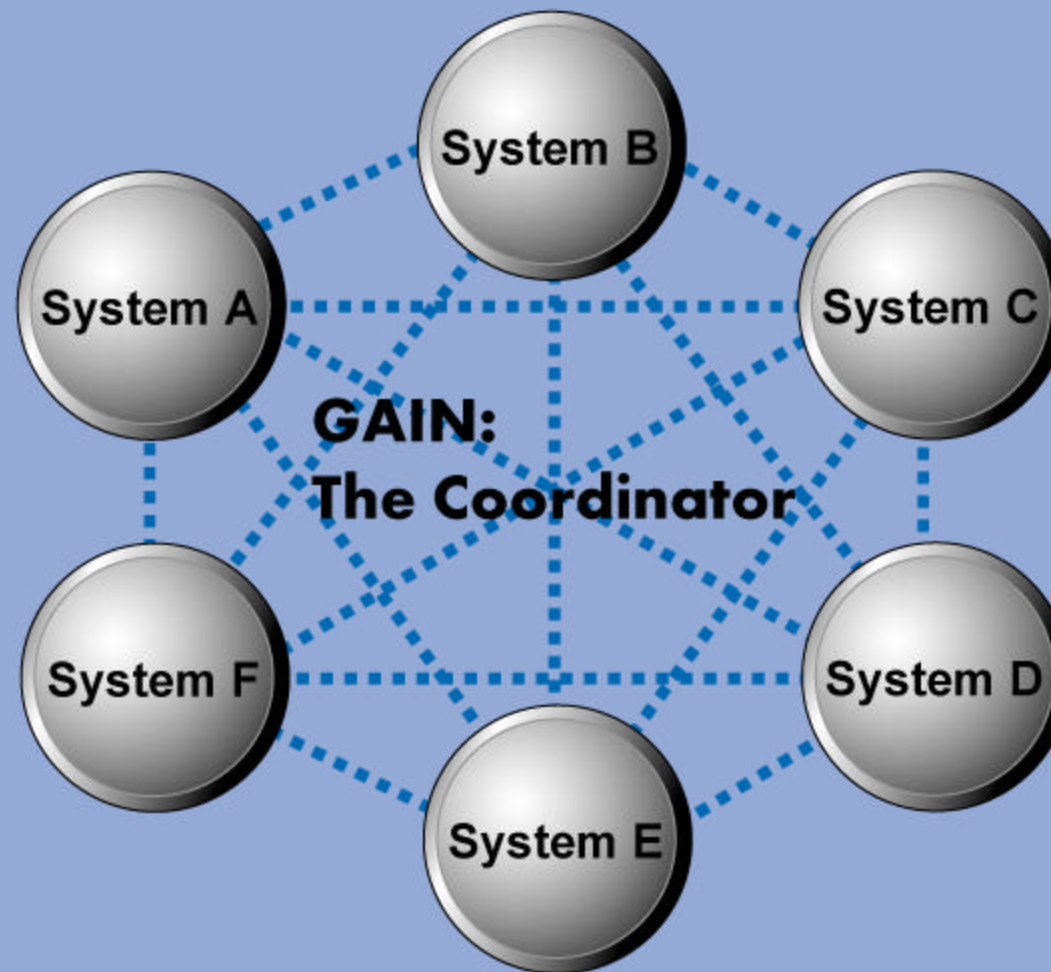


← *Root Causes* →

Eliminating a Latent Problem -- Moving Toward Root Cause



Global Aviation Information Network: The Concept



Definition



The voluntary sharing of safety information within and among networks of users in the international aviation community to improve aviation safety

What is GAIN ?



Gain Is:

- Evolutionary
- Inclusive
- Built on collective needs
- Expanding existing systems
- An international cooperative effort

Gain Is NOT:

- A single centralized database
- A regulatory or enforcement program
- Mandatory
- The sharing of raw data
- A replacement for existing systems
- The single solution for improving aviation safety

Others Who Are Interested



Transportation Department

- Coast Guard (IMISS)
- Highway Administration
- Railroad Administration
- Pipeline Safety

Others (con't)



**Critical Infrastructure
Assurance Office (CIAO)**

Public Utilities

Firefighters

Health Care industry

The Health Care Industry



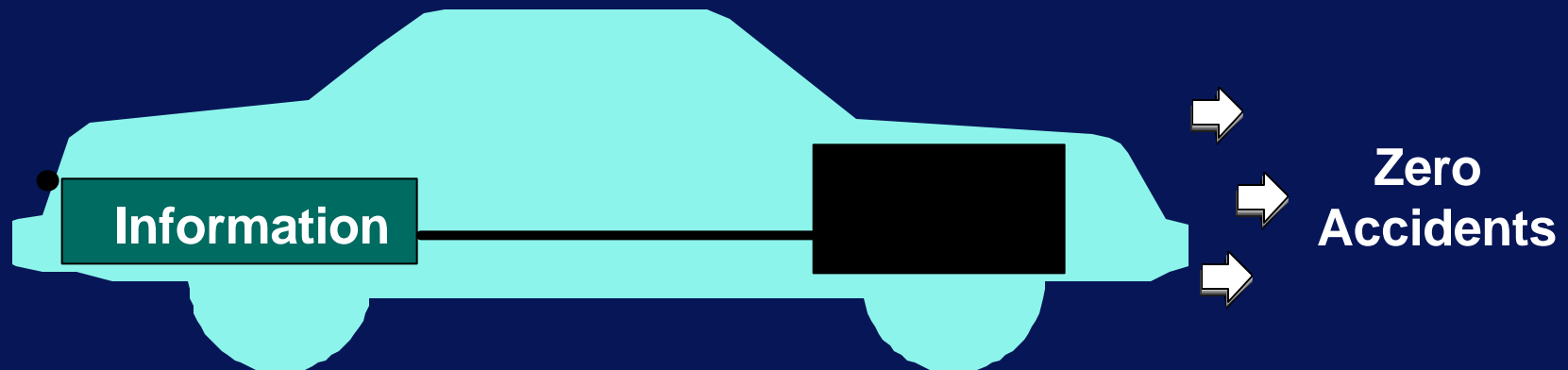
To Err Is Human:

Building a Better Health Care System

“The focus must shift from blaming individuals for past errors to a focus on preventing future errors by designing safety into the system.”

Institute of Medicine, Committee on
Quality of Health Care in America

Information: The Fuel for Our Engine



Obstacles that Block the Flow of Information



Concerns About

- Public Disclosure
- Job Sanctions/Enforcement
- Criminal Sanctions
- Civil Litigation

Removing U.S. Obstacles



- **FAA Reauthorization, 1996**

- Prohibits public disclosure of voluntarily provided aviation safety information

- **President Clinton, January 2000**

- Announced Aviation Safety Action Programs (ASAP) for voluntary pilot reporting

- **FAA NPRM, June 2000**

- Proposes protections for airlines and their employees from enforcement actions for regulatory violations discovered from voluntary reporting programs

Removing Int'l Obstacles



- **ICAO 32nd Assembly, 1998**

- Resolution to improve safety through enhanced collection, analysis and dissemination of safety information

- **ICAO AIG, September '99**

- Approved recommendation to Annex 13 that States should establish non-punitive incident reporting systems, promote establishment of safety information sharing networks, and facilitate free exchange of information on potential safety deficiencies

Challenges



Legal Issues

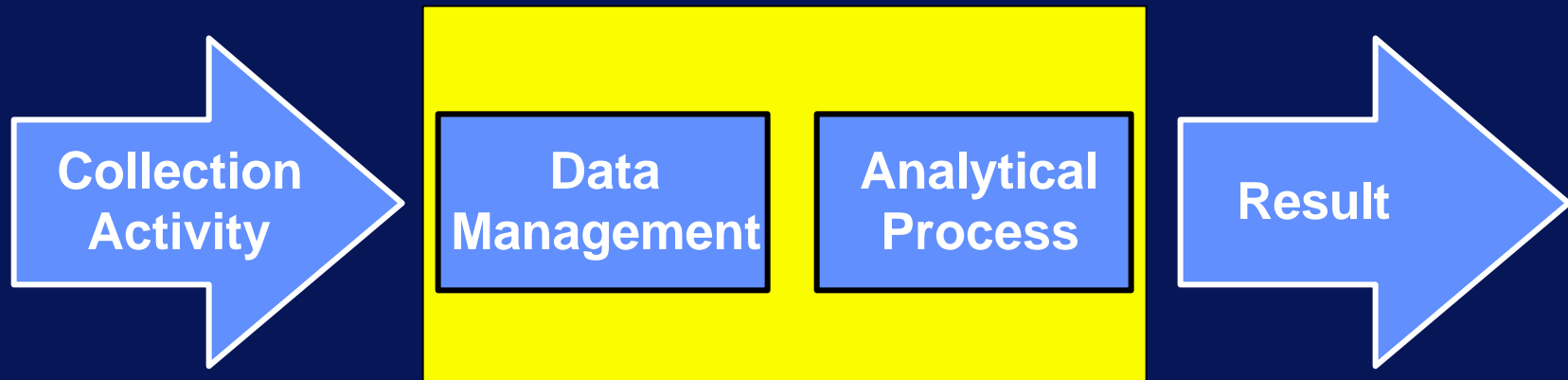
Improved Analytical Tools

As we begin to get over the first hurdle, we must start working on the second.

Data Collection and Analysis



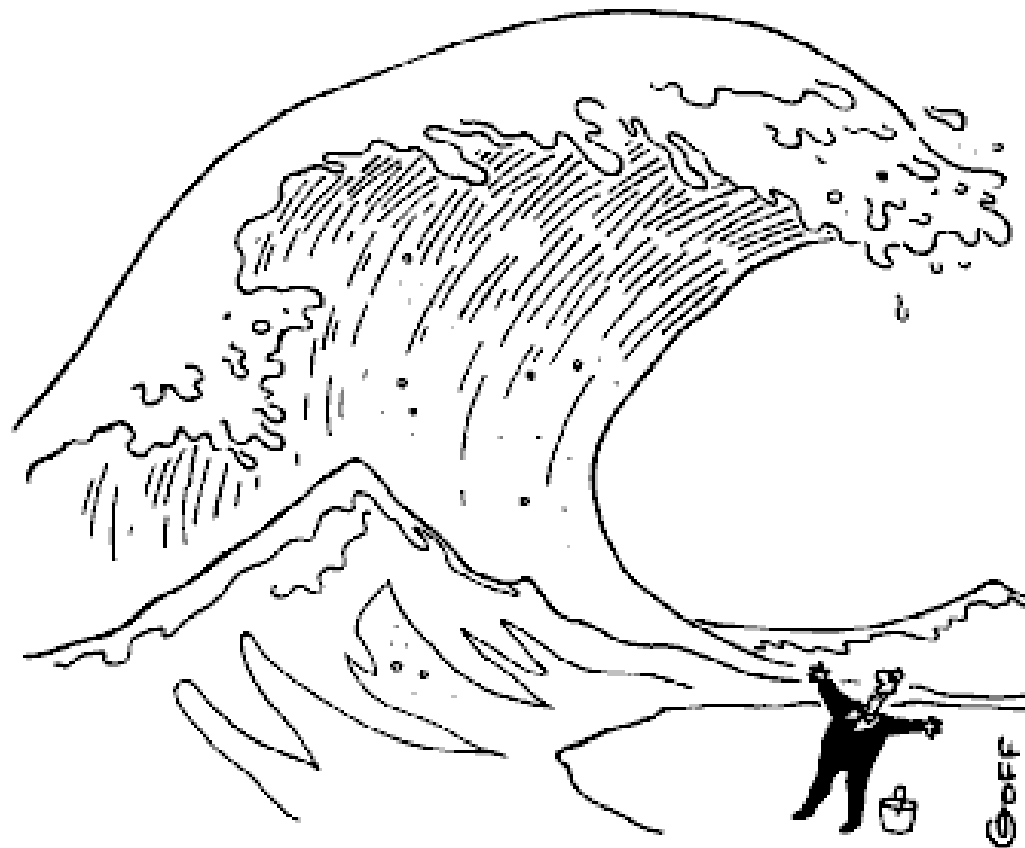
The Crucial Missing Link



Information Overload



© 1996 Ted Goff



"EUREKA! MORE INFORMATION!"

Analytical Tools



Must be able to help analysts:

- Identify Potential Problems
- Prioritize Potential Problems
- Develop Solutions
- Evaluate Success

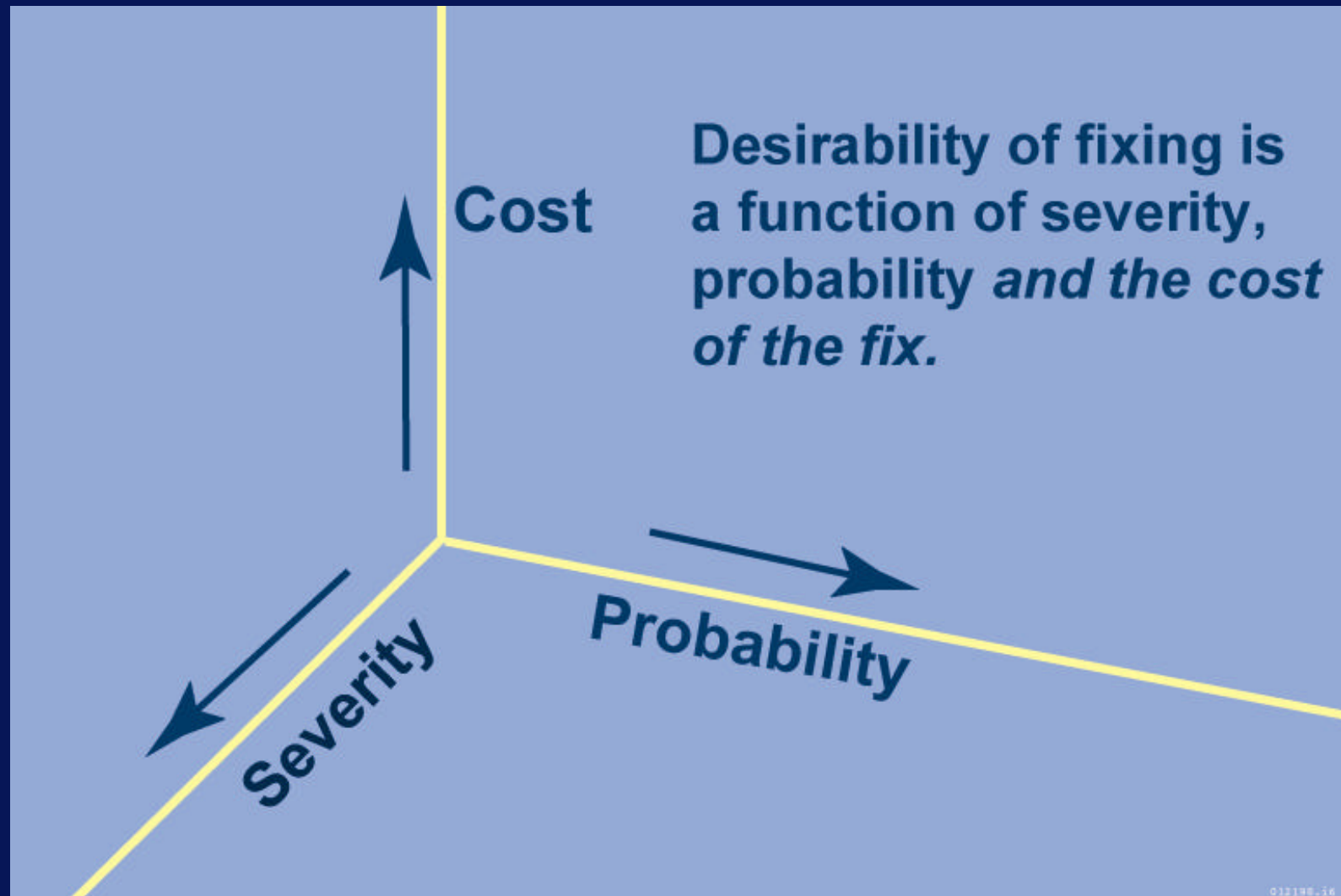
***All* Accidents Involve Human Factors**



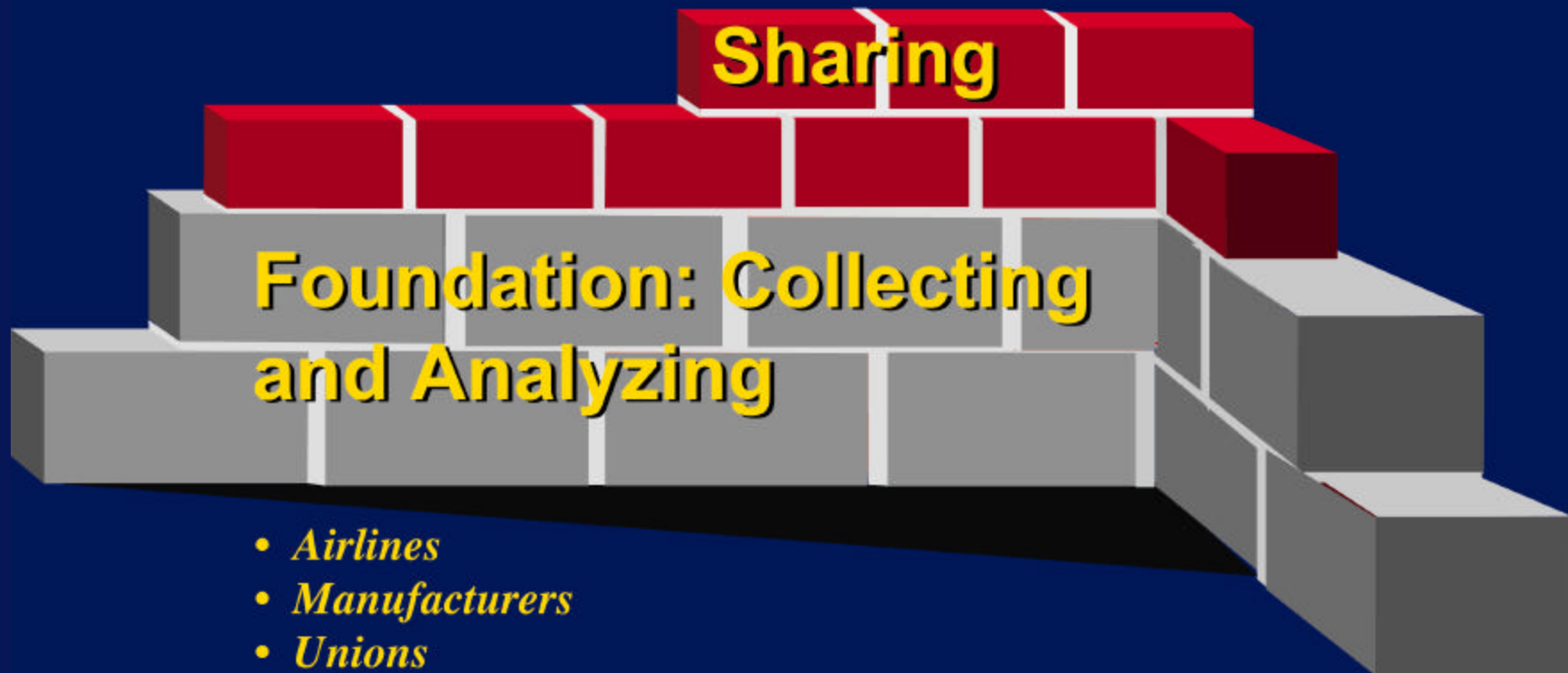
- Pilots
- Air Traffic Controllers
- Mechanics
- Cabin Crew
- Dispatchers
- Ramp Personnel
- Airport Operators
- Manufacturers
- Designers
- Management:
Agency/Corporate

= 100%

Prioritizing: Three Dimensions, Not Two



Many Have Already Begun The Process



- *Airlines*
- *Manufacturers*
- *Unions*
- *Government*

\$avings



**OPERATIONS
&
MAINTENANCE**

Immediate
Benefits

ACCI DENT
PREVENTION
Long-Term
Benefits

YOU Decide:



- Whether to be in the Network --
COMPLETELY VOLUNTARY
- What Outsiders, If Any, Could Access Your Raw Data (Probably Nobody)
- What Data Standards to Use
- What Analytical Protocols to Use
- Who Would Analyze Your Data
- How Much and When to De-Identify Your Data and Analysis
- What Outsiders, If Any, Could Access Your Analysis

GAIN Would:



- Operate the “Phone Lines”
- Manage the Communications Infrastructure
- Connect You to the Network -- But Only Upon Your Request
- Suggest Data Standards
- Suggest Analytical Protocols for Consistency

And If You Decide
To Join The Network...



You Will **ALWAYS** Have
SOLE AND COMPLETE
CONTROL
Over Your **Data**
And Its **Analysis**

Three Domains For GAIN



Flight Deck



ATC



Maintenance

Steering Committee



- **Airlines**

- Delta Air Lines (*Chair*)
- Air France (*Vice-Chair*)
- British Airways
- Middle East Airlines
- Japan Airlines
- Air Transport Association
- Int'l Air Transport Association
- Regional Airline Association

- **Manufacturers**

- Airbus
- Boeing

- **Flight Safety Foundation**

- **Labor**

- Air Line Pilots Association
- Int'l Association of Machinists & Aerospace Workers
- National Air Traffic Controllers Association

- **General Aviation**

- National Business Aviation Association
- Helicopter Association Int'l

- **Military**

- US Navy

Working Groups



- **Working Group A**
 - Aviation Operator Safety Practices
- **Working Group B**
 - Analytical Methods and Tools
- **Working Group C**
 - Global Information Sharing Prototypes
- **Government Support Team (GST)**
 - Several Countries, JAA, European Commission, ICAO

Fourth GAIN World Conference



Where: Paris, France

When: June 13-15, 2000

Hosted By:



FAA Administrator Jane Garvey:



“GAIN is one of our best hopes for enhancing aviation safety in the next century.”

**GAIN III World Conference
November 1998**

Please Visit and Explore...



www.gainweb.org